

A relation of a very sudden and extraordinary cure of a person bitten by a viper, by the means of acids. Together with some remarks upon Dr. Tuthill's vindication of his objections against the doctrines of acids ... / [Sir John Colbatch].

Contributors

Colbatch, John, Sir, 1670-1729.

Publication/Creation

London : Dan. Brown, A. Roper & T. Leigh, 1698.

Persistent URL

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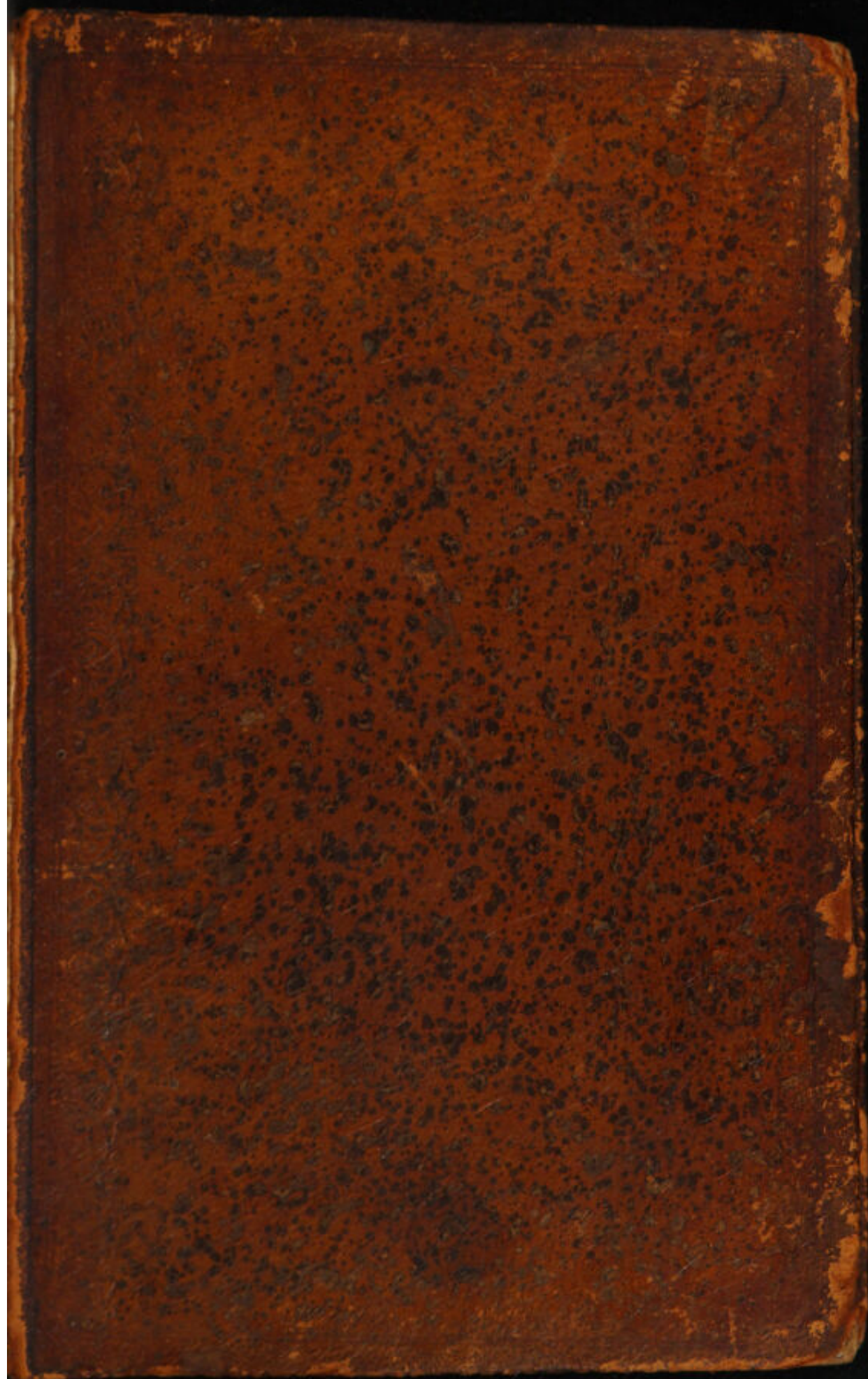
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MILBATCH'S VIPER CURE







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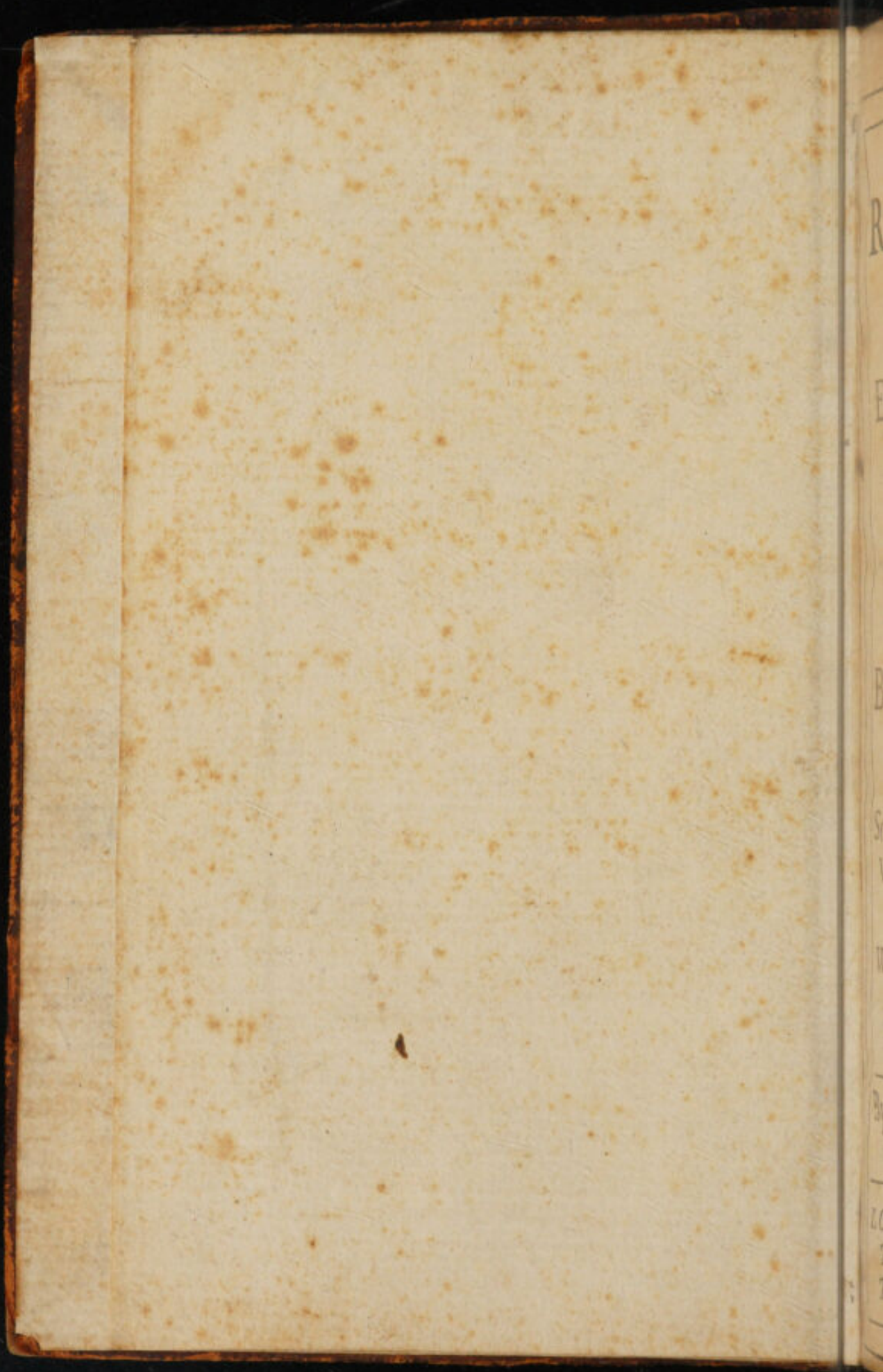
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A
RELATION
Of a very Sudden
AND
EXTRAORDINARY CURE
of a Person Bitten
BY A
VIPER,
By the Means of ACIDS.

Together with
Some REMARKS upon Dr. Tuthill's
Vindication of his Objections against the
DOCTRINE of ACIDS.

Wherein are contained several things in
order to the further clearing of the said
Doctrin.

By JOHN COLBATCH,
a Member of the College of Physicians.

LONDON, Printed for *Dan. Brown* without
Temple Bar; *Abel Roper* at the Black-Boy, and
Tho. Leigh at the Peacock in *Fleetstreet*. 1698.

THE
VOLUME
OF THE
COLLEGE OF
PHYSICIANS
IN THE
CITY OF
LONDON
BY
JOHN
HARRISON
M.D.
1704

Dr.
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To the unknown

Dr. COLBATCH,

Upon his several

Most ingenious Tracts in PHYSICK,

Especially that of

ALKALIES and ACIDS.

PHYSICK for Ages past has gropt
her way
In Paths of Darkneſs, without any Ray
Of certain Truth, and ſtill was going
aſtray :

When COLBATCH roſe, who with reviving
Light

Diſpell'd the Clouds, and chas'd away the
Night.

By him th' important Secret is reveal'd,
Thro Fraud and Ignorance ſo long con-
ceal'd :

A

No

No fordid hopes of Gain e're sway'd his
Mind,
His only Aim's the Good of Human kind ;
Who first with Pains and Labour dug the
Oar,
Then freely gave us all the Golden Store.

Let Juggling *Quacks* grown envious of
thy Name,
Combine together to obscure thy Fame ;
Such are the Myst'ries which thou dost
unfold,
They'll write thy Name in Characters of
Gold :
To Thee alone Mankind's indebted more,
Than t'all the Doctors that have gone be-
fore.

J. C. junior.

TO

Dr. COLBATCH'S Relation

OF THE

CURE

Of a Person bitten by a

VIPER, &c.

*Books published by Dr. John
Colbatch.*

Four Treatises of Physick and Chirurgery, viz. I. A Physico-medical Essay concerning Alkaly and Acid, proving Alkalies to be the Cause of all or most Distempers. II. Farther Considerations by way of Appendix to the said Essay. III. *Novum Lumen Chirurgicum*, or a new Light of Chirurgery, being a Discovery of a safer and speedier Cure of Wounds than hitherto practis'd. Illustrated with Experiments in *Flanders* in 1694. IV. A Vindication of the *Novum Lumen* from many unjust Aspersions.

A Treatise of the Gout: Wherein both its Cause and Cure are demonstrably made appear. To which are added, some Medicinal Observations concerning the Cure of Fevers, &c. by the means of *Acids*.

The Doctrine of Acids further asserted, in answer to Dr. Tuthil of Dorchester. With some things relating to the History of Blood, and an Attempt to prove what Life is, and by what 'tis supported. With an Account of the Case of *Edmund Turner*, Esq; &c.

T O T H E
R E A D E R.

I Have in all my Writings taken Truth for my Guide, as being the Soul of an Undertaking, and a Duty which ought to be stipulated by every Writer, both with God and Man; and this I may say, that I have not wanted courage to speak it, nor means to discern it.

The opposition I have met with hath been almost insupportable, Truth at its first appearance never wanting multitudes of Opposers; but (thanks to God) the Eyes of the World begin to be opened, and the new Doctrine I have advanced hath gained so much ground, that few Authors

To the R E A D E R.

in their own life time, have scarce seen the like. This unwonted and unexpected Encouragement that I have met with, hath filled me with such a sense of Gratitude, that at present I am not able to express; neither can I better manifest it, than by prosecuting the Work I have begun, with all the diligence and industry that my Nature is capable of bearing, and this I do oblige my self to do.

Reason is the true Touchstone by which we ought to examine every thing; and according as any thing doth agree or disagree with it, so we ought either to embrace or reject it. I remember that that Prodigy of Nature, the learned Mrs. Ann Baynard, did once, in my hearing, say, That Reason was that eternal Standard, which God Almighty, as a Ray of his own Image, has impressed on Man, to the election or dislike of what may hurt or succour him; and where this is rais'd and im-

To the READER.

improv'd, makes him an Angel, but where sunk and depress'd, a groveling Brute.

I do protest I have never yet advanced any thing before I had weighed it in the Balance of the best Reason that God has given me; and for fear lest Reason alone should deceive me, and thereby suffer me to impose upon the World, I have always joined experience to it; so that both being combined together, I could not well be deceived my self, nor lead others into errors. And I am apt to believe, that if People would but lay aside their Prejudices, and consult their Reasons, I should not have one Enemy left. But to my no small grief, I have heard some Physicians of no ordinary reputation, positively declare, That Authority, and not Reason, was what they depended upon. Of these men I have little hopes; but since they won't hearken to my Reasons, let them but inquire into the
success

To the R E A D E R.

Success of my Practice ; and if they find, that by the means of Acids I am able to cure those Distempers, which are not to be cured by Alkalies, I hope it will at last cure them of their Scepticism.

From one Generation of Physicians to another it has constantly been handed down, that the Gout was a Distemper not to be cured ; and in spite of all the Noise that the last Age has made about experimental Philosophy, no man ever went out of the common Road to try whether this Position were true or false. But now it doth evidently appear, that the Gout is not such a Fury, but that it may with ease be overcome by the means of proper and powerful Acids ; the truth of which there is scarce any part of England, but there is one or other that can experimentally attest. Now if it doth evidently appear that my Predecessors have been so notoriously ignorant, as to the Cause and Cure of so common a Distem-

TO the READER.

Distemper, it is not unreasonable to believe that they have been so in other Cases, nay it is most certain they have been so: and there are a great many honest Gentlemen of the Faculty who are not ashamed to acknowledg it, and that not only in words, but by the alteration of their Method of Practice: tho there are another sort, who of late have with good success made use of Acids plentifully, and at the same time have given me all manner of opprobrious Language: but I thank God I am out of the reach of their malice, and though they persist in their ingratitude, yet I shall continue my endeavours to serve them to the utmost of my power.

I have the same just Apology to make at this time as formerly, viz. That being in a continual hurry of Business, I have not been able to perform things with that niceness and exactness that I should otherwise have done; and I know there are a great many who will read these Papers

TO THE READER.

pers with no other design than to find faults: but the Barks of these Criticks will never disturb me, because I have undertaken nothing but with a real design to serve Mankind; and I doubt not, but in spite of all the imperfections that are to be met with, there are a great many Candid, Ingenious men, who will make as favourable a construction of this, as they have done of my former Undertakings. And if men of Candor are but pleased, I care not what the envious Criticks say.

Villers-street York-
Buildings, May 1.
1698.

Jo. Colbatch.

*A Relation of a very sudden
and extraordinary Cure of a
Person Bitten by a Viper,
by the means of Acids.*

ON Saturday, March the twenty sixth, one Mr. Stringer, a Chymist in Villers-street in York-buildings, was seeing a Collection of Rarities, which were exposed to publick view in Stocks-market; amongst other things there was a live Viper kept in a Glass of Bran. The person who shew'd the Collection, upon some inducement or other, took the Viper out of the Glass to shew Mr. Stringer; but handling him more rudely than he ought to have done, enraged the Viper, and he bit
B him

him by the *Finger*; and from the place into which the *Tooth* entred, there issued forth a few drops of *Blood*: it was just above the upper joynt of the fore *Finger* where the *Tooth* entred.

At first the man, whose name is *Philipson*, made nothing of it, but in a little time his *Finger* swelled and pained him exceedingly; upon which by the direction of somebody, a *Hot Iron* first, and afterwards *Venice Treacle* and *Oyl of Vipers* were applied to the part; but the symptoms not abating by these methods, Mr. *Stringer* advised him to seek out for further help: he perceiving that Mr. *Stringer* had some knowledg of the matter, desired his assistance; upon which Mr. *Stringer* sent to Mr. *Francis Molt* a *Chymist*, for some *Salt of Vipers*; but Mr. *Molt* not being at home, and that not being to be had, he sent to another place for some
dul-

dulcified Spirit of Niter, a large quantity of which he gave him in *Claret*, and with the rest he embrocated his *Finger and Hand*, which at the present afforded him some relief, he being then in *extream Agonies*, and had such a trembling in his *Hand and Arm* as is scarce conceivable. But in a little time the *symptoms* returning, the *dulcified Spirit of Niter* not being powerful enough to overcome so *subtile a Poison*, Mr. *Stringer* again pressed him to seek for further help: upon which he told Mr. *Stringer* that he had a *Brother* in *Pal Mal*, who was an *Apothecary*, to whom he would apply himself for assistance and advice: so to his *Brother* he went in a *Coach*, Mr. *Stringer* accompanying him.

When he came to his *Brothers*, the *symptoms* were so aggravated, that his *Brother* was under very great concern for him, and proposed sending for

Dr. Sloane and several others; but Mr. Stringer mentioning me, he readily assented to take my advice in the matter; upon which they got into the Coach, and drove to Mr. Stringer's House, by which time the man was grown so weak that he could scarce stand. After they had gotten him into a Room, they sent for me; but I not being at home, Mr. Stringer sent for Mr. Alexander Small a Surgeon in New Round Court, a young Man of great *Honesty* and *Industry*, and one whom I frequently imploy.

Mr. Small having never seen any thing of the like nature before, was at a stand what to do; he first of all thought of *scarifying* the *Finger*, but when he considered that the *Tumor* had extended it self even to his Shoulder, in which part he had very acute Pains, and from the other symptoms that attended him, concluding the *Poison* had dilated it self through

through the whole *mass* of *Blood*, he altered his first resolution, and instead of *scarification* made use of the following *method*. Before I give an account of which, I shall take notice of his *circumstances*, as they were related to me, by Mr. Small, Mr. Stringer, and Mr. Philipson Apothecary, the man's Brother. His *Hand* and *Arm*, as is before related, were extremely *swelled* and *inflamed*, and full of *pain*; but the *pain* in his *Finger* where the *Bite* was, and that in his *Shoulder* did much exceed the *pain* in other parts; he had a great *Vertigo* or *Giddiness*, a *Deliquium Animi* or *Faintness*, even to such a degree, that he could scarce sit without being held in the Chair; an extraordinary and violent *Strangury* also attending him, with *cold sweats*, and great *disorders* in his *Stomach* and *Bowels*, and his *Countenance* turned extremely *Yellow*, and *stretched out*, almost, as *dead*.

Mr. Small and Mr. Stringer provided a good quantity of my *Elixir Vitrioli*, an account of which and its preparation may be met with in the *second Edition* of my *Essay of Alkaly and Acid*. With this *Elixir* Mr. Small embrocated the *Fingers, Hand and Wrist* for near half an hour together, and two or three times in the said space he dipped the end of the bitten Finger in plain Oyl of *Vitriol*: in the interim he gave him two or three Drams or more of the *Elixir Vitrioli* inwardly in a large quantity of water, when the man finding a great propensity to vomit, Mr. Small advised him to put his Finger in his Throat and help it forwards; after he had vomited plentifully, Mr. Small plied him afresh with the *Elixir Vitrioli* in water: the quantity he took after his vomiting Mr. Small guesseth to be near, if not quite, half an ounce.

In less than half an *hour* after Mr. Small came to him, all the *symptoms*, except the *swelling* of his *Hand* and *Arm*, and that was sensibly lessened, were totally vanished, and he able to walk from *York-buildings* to the *Grecian Coffee-house* in *Essex-buildings*, to find me out to desire my further directions in the matter. Now the *violence* of the *symptoms* being abated and gone, I prescribed him more *temperate Acids* than those he had before taken, and that had been applied to the affected parts.

Rx *Fol. Rutæ Contus. manip. Duos*
Rad. Angelicæ Hispan. pul. Unc.
Duas

Micar. Panis Albi Unc. quatuor
Aceti Acerrimi lib. duas

coquantur ad debitam consistentiam, cui
adde

Ol. Scorpion. Unc. duas. M. f.
Cataplasma.

B 4

Rx *Elix.*

℞ *Elix. Vitrioli Dracm. Duas*
Sp. Vini Rect. Unc. Duas. m. f.
Mixtura.

℞ *Fol. Rutæ Manip. Unum*
Rad. Serpentariæ Virgin. Dracm.
sex.

Angel. Hispan. Unc. Unam
Petasitidis Unc. Unam semis
Vini Albi, Aceti Acerrimi, ana
lib. Unam

Infunde calide per horam & coletur,
Sig. the Infusion.

℞ *Ol. Vitrioli Dul. per digest. fact.*
Unc. semis,
Sig. Dulcified Oyl of
Vitriol.

I ordered the man to go to his
 Lodging, which was in *Black Fryars*;
 and because his Brother could not get
 the forementioned things ready un-
 der

der three or four hours, I advised him as soon as he came home, to take three ounces of Treacle Water, (in my opinion one of the best Medicines in the London Dispensatory) and as soon as he had taken it, to go to Bed.

I ordered that the Cataplasme should be applied warm to the Hand and Arm as far as the swelling reacht, every six hours; and before the application of the Cataplasme, that the parts should be well embrocated with the Mixture.

Of the Infusion he took four Ounces every four hours.

Whenever he was thirsty, I advised him to take twenty Drops of the Dulcified Oyl of Vitriol in a draught of White Wine and Water.

One Sunday morning about eleven a Clock I went to visit him, and when I came to his Lodgings, I found Dr. Sloan with him; the Doctor said the method that had been used was new,
but

but that the Man was in a very good condition, and out of all danger. He had *slept* well the whole *night*, and was not in the least *Feverish*, neither had he the least *disorder* upon him, only a very small *pain* in his *Finger*, the *swelling* of his *Hand* and *Arm* being greatly abated.

I ordered the continuing of his former *method*, the which I had no reason to vary. But Dr. Sloan proposed, that if his *Infusion* should make him *puke*, as it once had done, then in the room of it, he should at the same intervals take *half a dram* of *Virginian Snake Root* in powder, drinking afterwards *two or three ounces* of *Treacle-water*, sweetned with *Syrup* of *Gilliflowers*; the which I consented to, it no way thwarting the *Methods* that had before been taken.

At night I visited him again, and then found him as *brisk* and *well* as if nothing had ailed him; the *Infusi-*
on

on had not disagreed with him, and therefore he took not the Powder of Snake Root ; but I mixed the Treacle-water and Syrup of Gilliflowers with the remaining part of the Infusion, and ordered him to take four ounces of it morning and evening only, so long as it lasted.

The next day I visited him again, when I found him up and eating his Dinner very heartily : I then ordered him to continue the use of the Cataplasme so long as he found the least swelling in any part, and then dismissed him from my care, there not being any more need of my further attendance.

A small swelling of his Finger continued for some time after, but without trouble or pain.

I believe I may without vanity say, that considering the symptoms that attended this man, which were as severe as possible, and he survive it, there has not been a more ex-

traor-

traordinary Cure wrought, nor such symptoms, raised upon such an occasion, ever taken off in so short a space.

Now did the poison of *Vipers* consist in a *Volatil Acid*, as some would make us believe, how is it possible for any one to conceive, that ever these dreadful Symptoms could be so soon taken off, by giving more *Acids*, and that in so extravagant a quantity as they were at first given by Mr. Stringer and Mr. Small? Nay had the Poyson been an *Acid*, it is very reasonable to believe, that the more *Acids* they had given him, the more his Symptoms would have been aggravated. Whereas, on the contrary, it plainly appears, that by the repeated large quantities that they gave him, the Symptoms were so soon abated, that it is almost past belief.

I cannot but observe, that in the strange relation that Dr. Stubbs gives of

of the *severe Symptoms* that attended the man at *Warwick* that was bitten with an *Adder*, the only thing that put him out of *danger* of losing his life, was the *Mixtura simplex* that was given him, which is a most *noble Acid*; but this man had not the *Mixtura simplex* given him in such quantities, or in any *proportion* to the *Acids* that *Mr. Philipson* took; neither was his *Cure* either so *expeditious* or so *easie*, as may be seen in *Dr. Stubbs's* relation of that matter.

The *hot Iron* was equally *useless* in this, as in that *Case*; and I am apt to believe doth never do any service at all, unless applied at the very instant of time, that the *bite* is received.

Mr. Philipson did suck his *Finger* as soon as he was *bit*, and to that a certain *Physitian* attributes a great deal, and says it help'd to expedite the *Cure*. Whereas there are several *Authors* of *undoubted credit*, who have given *re-*
lations

lations of persons that have died by so doing. And if this man had sucked out any great quantity of the Poison with his mouth, how came the whole *Hand* and *Arm* to be so immediately affected in so dreadful a manner?

Lemery in his *Course of Chymistry* does confess, that the *Viper* doth abound more with *Volatile (Alkalious) Salts*, than most other *Creatures*, and assigns a very good reason for it, viz. from the extraordinary closeness of the *Cutaneous Pores*, by which means they do not perspire so freely as other *Creatures* do. Nay he confesseth, that their *Poison* consisteth in the emission of a very great quantity of *Volatile Salts*, at the time of their being enraged or angred; but then to square himself with the vulgar Opinion, he tells us, that these *Volatile Alkalious Salts* are instantaneously, at the time of their emission, during the time of the *Vi-*
pers

pers short rage, turned into *Acids* of the most volatile nature: this is such *Jargon* that nothing can be imagined like it. The transmutation of Metals (even to those who are the greatest enemies to it) is a mere jest to it.

If we look into *Moses Charras* his account of the *German* that was bit at his house, after all the pother that he makes about his *Volatile Salt* of *Vipers*, yet the Cure of that man was not performed without a great deal of hazard and trouble, and the intermixture of a great many other Medicines, besides that of the *Volatile Salt*, and those even *Acids* too, as *Treacle-water*, and slices of *Citrons* with Sugar; but these *Acids* could not so effectually operate as otherwise, it's probable, they would have done, by reason of their being obtunded by the *Volatile Salt*, that was so frequently given him. But *Hoffman* in his *Clavis Pharmaceut. Schroderi*, pag. 45, & 46. (as I have
else-

elsewhere observed) doth wholly at-
tribute the Cure of this man to the
Juice of Citrons, after all other things
had proved ineffectual; and ridicules
Charras for feigning the Poison to be
an Acid: For if this were so (says
Hoffman) how could the juice of Ci-
trons (which is an Acid) afford the
Patient any relief?

I shall conclude this subject with
this one observation, viz. That Physi-
cians get more reputation by keeping
their Patients a long time in hand, and
in continual danger of their lives, than
by quick and expeditious Cures. As
for instance:

One Physician has a Patient sick of
a Fever; he takes such a method that
his Patient lies a month in continual dan-
ger and hazard, but at last recovers and
gets abroad; he then proclaims to
every body the miraculousness of the
Recovery and the Danger he was in;
upon which enquiry is made who
was

was the *Physician*? he immediately replies, the *Famous Doctor* such a one; and if he be a *Person* of any *Note*, the *Physician's* work is done.

Another *Physician* has a *Patient* that has the very same *Fever*; this *Physician* takes care to *obviate* all *symptoms*, and his *Patient* is abroad in eight or ten days, and perhaps has never been in the least *hazard* of his *Life*. He (instead of *magnifying* the *skill* of his *Physician*) tells his *Friends*, my *Physician* tells me I have had a *Fever*, such as my *Neighbour* such a one had, but I believe he is mistaken, mine could be no more than a *Cold*, which would have gone off had I done nothing at all; and this is frequently the *reward* that *honest men* meet with: and I doubt not but the same *reflections* will be made upon *Mr. Philipson's Cure*, viz. that he would have been well in the same
C time;

time, had nothing at all been done to him.

Several Physicians have publickly said, that a prick with a Needle or the point of a Lancet in some Parts would occasion as dreadful symptoms as this man had. Supposing this to be true, I believe every body will allow that the taking off of such Symptoms in so small a time, let the occasion of them be what it will, is not ordinarily seen; and Dr. G. with the prick of a Lancet only, was hurried away into another World, who yet was as likely a man to make the forementioned Objection, to undervalue any thing done either by me, or upon the Basis of my Hypothesis, as any one now living.

I will not pretend to justify Mr. *Stringers* conduct in a great many things; but he being a person greatly concerned in the first and most material part of what was done for
Mr.

Mr. *Philipson* in order to his Cure, I could not in justice but make use of his Name as he deserved. But for Mr. *Small* the Surgeon, he is a man of an unblemished Reputation, and as hopeful a Young Man as any of his Profession, the Testimony of whom only were sufficient upon such an Occasion; but the Testimonies of Mr. *Philipson* the Apothecary and the man himself being joined to his, makes the matter of fact unquestionable.

Remarks upon Dr. *Tutbill's*
Vindication of his Objecti-
ons against my Hypothesis.

Worthy Sir,

YOU are the only fair *Anta-*
gonist that ever I have had to
do with, and therefore I
ought to treat you with all the *tender-*
ness and *respect* imaginable. You can-
not but be sensible that I walk in an
unbeaten path, and therefore if I now
and then am out of my way, I am
the more excusable. It's true, some
few other *Physicians* have heretofore
used *Acids* in the Cure of several Di-
stempers, and the friendly correspon-
dence I have had with some of them
has

has been of great use to me; but the assistance I have had from them as to the *establishting* of my Principles, has been very inconsiderable. If I have made any *false steps*, neither of them are obliged to answer for me, and if I have made any good ones, (which I cannot forbear flattering my self that I have) I am sure it is owing to my own *labour* and *industry*; and altho I were not bred up at the *University*, yet I have taken as much true pains to inform my self in all the *Parts of Physick*, as perhaps any man ever did.

Let an *Hypothesis* be laid down with all the *caution* and *care* in the World, and establishted upon never so certain a *Foundation*, yet there will still be some room left for men to object; and he that will spend his time in answering all *trifling Objections*, that may and will be raised against a thing that is new, must lead

but an uneasie life. But, Sir, I do not mention this in relation to you, what *Objections* you have raised have seeming weight in them, and therefore I have given my self the trouble to clear my self of them as well as I can.

I no where tell you, that I have said all that is to be said on the behalf of my *New Hypothesis*, that requiring several years to perform. But I have already said so much, that I believe I may boldly say, it is the best and clearest *Hypothesis* in *Physick* now extant, and upon the foundation of which a man may with greater certainty attempt the Cure of more *Diseases*, than upon any other that has yet been made publick.

The present business of my *Profession*, together with another Piece of Work I am ingaged in, viz. A *General Treatise of Fevers*, does so take up my time, that I cannot make
any

any very large Remarks upon your further *Objections*; and were it not that I am willing to let the World see, that I have a greater esteem for you, than for those *Scoundrels* that have heretofore appeared in *Print* against me, for the present I should have been silent. For I must assure you, that I do not think my *Hypothesis* at all *shaken* by what you have now said, there being little or nothing more than what was contained in your first *Objections*. However I shall transcribe your fresh *Objections* in the order I find them, and make my *Remarks* in the same manner.

Reply. If you please to compare the Alkaline Spirit that you extracted from the Consumptive Man's Blood, with that which the healthy Blood afforded, you'll find no great disproportion; especially if you consider the *Caput Mortuum* of the sound Blood. For you say that it being broken into

small Atoms, each Atom appeared to be so many little Bodies of Fire in your Microscope. That there is not the least spark of Fire in the Blood, I shall endeavour to prove anon; wherefore 'tis not irrational to suppose that those lucid Atoms were of the Family of Salts: And if Salts, then Alkaline, according to the Rules of your own Hypothesis. But then (you reply) the Tabid Blood would have yielded much more Alkaly, had not the great quantity of Luxuriant Alkaly been thrown upon the Lungs. Methinks this looks a little strange. For if you remember the Consumptive Person did sweat prodigiously. Now you make Sweat to be nothing but an excrementitious Alkaly. If this Alkaly then was carryed off in such quantities, it could not well abound so much in the Lungs.

Remark. This Objection or Reply to my Answer is a tolerable good one, and not without some seeming weight;

weight ; but is what I am easily able to clear my self from. For,

First, I my self have before taken notice of the small *disproportion* between the two peoples *Blood*, and have assigned one very good reason for it ; but according to your wonted Candor, you have furnished me with a *second*, and that is the *profuseness* of the *Sweats*. Now if after these two great discharges of *Excrementitious Alkaly* by *sweating* and *spitting*, the *Blood* at last abounds with any quantity of *Alkaly* more than that of a *sound person*, it is, I think, very reasonable to suppose, that the *Blood's* being at first overcharged with *Alkaly* was the cause of the Distemper ; and in very many Consumptive Cases it is usual for the Patient to spit up perfect *Chalk*, and that in great quantities : Now if the *Blood* were overcharged with *Acids* in *Consumptions*, the whole Mass passing so
fre-

frequently through the *Lungs*, could not fail of being sweetned by this *Chalky Alkaly*. But on the contrary, I think it very plain, that the *Tone* of the *Lungs* being spoiled, and the *Blood* abounding with *Alkaly*, a part of this superabundant *Alkaly* is thrown upon them, and causes all the havock that is made by this *Tyrannical Distemper*; and this being a *Distemper* that most of my *Predecessors* have died of, and of which I my self am apprehensive, has made me not a little inquisitive into its *Nature* and *Cause*.

Secondly, That you might load the *Blood* of the *healthy person* with more *Alkaly* than I take notice of, you pretend from my own *Hypothesis* (tho without reason) to assign the cause of the *Lucidness* of the *Atoms* of the *Caput Mortuum*, to proceed from the said *Caput Mortuum's* abounding with *Alkalious Salts*. Now I can assure

sure you, that the whole quantity of *Caput Mortuum*, which that Blood produced, would scarce afford one grain of Salt of any kind. But supposing it to contain but the fourth part of a grain of *Phosphorus*, which is a true *Animal Fire*, that would diffuse it self through the whole, and make it *lucid*. The *Phosphorus* is a true *Animal Fire*, and is to be extracted from all *Animal Substances*; and if it did not exist in them, how is it possible for it to be extracted from them? And that the *Phosphorus* is an *Acidosulphureous* substance, is to be demonstrated without difficulty. And I have plainly told you, that the *Pabulum* of *Animal Fires* is a *sulphureous Acid*.

Your *second* and *third Replies* I shall not meddle with, because you either grant me what I have said, or else proceed upon meer suppositions, of which I can take no notice.

But

But here you fall upon me again without that order I could wish for, first with *Answer*, and then *First* and *Secondly* again, and so on. Of this I shall take no notice, but go on from your first Reply to the Second, Third and Fourth, &c. in their order, and mark the pages in the Margent.

Pag. 6, 7, 8. Reply. You say, That in page the 67th of my *Answer*, I know not what to make of your warm Particles. And by way of Reply you say, you mean Alkalious Particles, such as you believe the Blood abounds with in some Fevers, and in which you grant Acids are of use. But yet (say you) I cannot agree with your notion of Fevers.

A Fever (say you Pag. 68.) proceeds from a Constipation of some of the Emunctories, so that the excrementitious Alkaly, which should be carried off by them, is detained in the Blood,

Blood, which by breaking its Globules, &c. This Doctrine does not seem at all to correspond with your Practice. For Spirit of Vitriol, and other Acids which are very stiptick, the use of which you applaud in Fevers, should methinks constipate the pores more closely. And then they being of a very fixing nature, should fetter or retain those excrementitious Alkalies. Again, if Fevers are occasioned only by a detention of these Alkalies, then it must follow, that when ever they have free vent, the Fever must abate. But the contrary has been sometimes experienced, where the Patient has sweated very liberally, and yet died at last. If this will not serve the turn, I hope to make it appear anon, that Alkalies are not capable of breaking the Globules, and making such a bustle in the Blood. But I cannot but speak one word or two in their defence before I go any further. I am very apt to think, that in some Fevers, especially Pestilential and Malignant, the Spirits are
pri-

primarily affected, according to the Hypothesis of the ingenious Dr. Morton, witness those symptoms which attend the Nervosum Genus immediately upon the first seizure. But you must not admit of this notion, from the soil which you must lodge in the Blood, and thence be communicated to the Spirits. Well, let it be so, I will not dispute it: the difficulty on your side will be great still. For, tho I shall readily grant the Globules to be broken in the aforesaid Fevers; yet 'twill be a hard matter to convict Alkalies of those tragical disorders. For first, experience shews, that nothing is more proper in those Cases Malignant (I shall adventure to use the term, notwithstanding it has been so scouted of late) than pul. e Chelis, Rad. Serpentar. nay, Sp. C. C. it self, given in a proper Vehicle. But secondly, Nothing does so readily dissolve the mass of Blood, or separate its Principles as Acids, which I shall prove by and by, when I come to speak something of Dropsies.

sies. But this long discourse of the heat of the Blood, does naturally lead me to consider somewhat of its Flame.

Remark. I do still affirm that Fevers in general do proceed from a constipation of the *Emunctories*. Now what I mean by *Emunctories*, are those parts which are only designed and provided by Nature for the separation of the Excrements from the Blood; and whenever they are so disordered as not to be able to perform that office, why then there must either a Fever, or some other great disorder follow. And that this Doctrine quadrates with my practice is very plain. For whenever these *Emunctories* are over relaxed, they cannot squeeze out the excrementitious Particles in sufficient quantities, and so they return back again into the Blood, and cause Fevers, or some other disorder; and so of consequence Spirit of Vitriol, or some such kind of Stip-
tick

tick is the only proper remedy to take off this disorder. But to knock this matter on the head, you say that in many *Fevers* the Patient sweats so much, that by so doing it has cost him his life. This I will readily grant you, but the Sweats you mean are certainly such as we call *colliquative* ones; in which cases the *Emunctories* are so overmuch relaxed, that they cannot bear a congestion at all, and so there is no such thing as a secretion, but the Juices good and bad are all let out together; and unless they can be prevented by proper Stipticks, which will put Nature into her right course, the whole Fabrick must soon be destroyed. And it is also to be observed, that in such *Fevers* the heat doth scarce exceed that of the natural temper, the Pulse being also exceeding low. In the latter part of this Reply you altogether go upon suppositions, without the least kind
of

of demonstration, and so it is scarce worth my taking notice of: but however to manifest my respect, I shall go on with it. As for what you mean by the Spirits being primarily affected in Pestilential and Malignant *Fevers* (all deference being had to the worthy Dr. Morton) it is Hea-then Greek to me: For by my own experience, (to use your own terms) in such cases I have found the *Blood* so full of soil, that from thence I stick not to account for all the depression of Spirits and other nervous Symptoms that attend those *Fevers*. And for a *Fever* of the Spirits purely, a very late Author has sufficiently exploded that matter. And in my own Practice, within the space of a twelve month, I have been concerned with three Persons (and thanks to God I have seen no more) that have had the true Pestilence or Plague; the *Blood* of all which I have

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seen, and indeed it has rather deserved the name of Soil than Blood, they being such masses of Putrilaginous Substance, that no man could without horror behold ; and (by the assistance of Providence) two of these persons I recovered by the means of *Acids*, and believe I might have done the same by the third, had I been called in in time. As for what you speak of your Experience as to the efficacy of *Pulvis è Chelis*, and *Sp. C.C.* it's a meer trifle ; and if ever any thing was done after the exhibition of them, Nature her self deserved the whole honour, nothing in the least being to be attributed to the Medicines, as may demonstrably be made appear, and to please you I shall endeavour to do. But by the way I beg of you, that you will not rank the *Rad. Serpentariae* with the *Pul. è Chelis* and *Sp. C. C.* for the *Rad. Serpentariae* belongs to me, it being a
most

most noble sulphureous *Acid* *invelo-*
ped; and that it is so I will be obli-
 ged to maintain. But to return. I
 do boldly assert that in no *Fever* that
 ever I have yet met with, let them
 be either *benign* or *malign*, have I ever
 yet observed that the Patient has been
 in the least sensible of any Acidity
 in the Stomach or Mouth, but ge-
 nerally those parts have been clog'd
 up with a Matter that looks so like
Alkaly, that if it be not the very same,
 I am sure it's no kin to the *Crab-Tree*.
 Now suppose it to be *Alkaly*, as it's
 plain it is, what can the *Pul. e Chelis*,
 which is a fixt *Alkaly*, or the *Sp.*
C. C. which is a volatile one, do
 to remove; the *Pul. e Chelis*, or any
 Medicines of that Tribe, I mean of
 the *Testacea*, which for want of an *A-*
cid to dissolve them, must lie upon the
 Stomach, and by clogging of that
 cannot fail of doing a great deal
 of mischief to the whole Body? As

for *Sp. C. C.* or any Medicines of that kind, I cannot see what reason there can be for the exhibition of them, because it is most demonstrably manifest, that the Blood of feverish People is always overclog'd with Particles of the same Nature, *viz. volatile Alkalious Salts.* But instead of the *Testacea* and *volatile Salts*, if you use any of the following sort of Medicines, I am apt to believe that your Practice in Malignant Fevers will be more successful than it has hitherto been; *viz. such as Aq. Theriacalis* in large quantities, *Mixtura Simplex*, *Elix. Vitrioli Nr.* an Infusion of *Virginian Snake Root*, &c. in Vinegar, &c. but here I have not room to expatiate. By the use of these Medicines you may raise the Pulse, and fortifie the deprav'd and paul'd Stomach, promote due and regular Secretions, and change the malignant colliquative symptomatick Sweats
into

into benign and critical ones. But this is not a place for me to expatiate upon the method of the Cure of *Fevers*, that being reserved for a particular Tract by it self; which with some other things that I have promised the World, shall appear abroad as soon as I am able.

As for what you here say in relation to *Acids* dissolving the Blood, I shall now take no notice of it, because you handle that matter more largely in another place.

Reply. And here the *Life of Man* you take to be a Fire or Flame, and all we eat and drink, together with the Air we draw in, to be Fuel for this Flame. The chief Arguments you bring to confirm this Doctrin, are taken from the Excrements of this Flame and its Fuel. The Excrements are Alkalies, which are near of kind to *Ashes*, the Relicts of other Flames: And for its Pabulum, 'tis Acid and Sulphur the common Pabulum

of all Flames. Here I must confess you talk very ingeniously, and highly improve the Notions of that great Philosopher. But let us examin this Hypothesis a little. As for Alkalies, I confess they are of the same nature with Ashes and Soot: Yet it does not follow, that because Alkalies are found in the Blood there must be a Flame too. We extract Alkaly out of several Herbs. 'Tis true the Herbs must be calcined first. But certainly the Salt was pre-existent in the Herb before the Calcination, or else the Fire produced it de novo, which you will by no means admit. The Inference then is plain. I will not adventure to say any thing of Crabs-Claws, Oyster-Shells, &c. lest you should make them the Recrements of a vital Flame. Come we next to the Pabulum, and that is Acid and Sulphur. That Bodies in which Sulphur is predominant, are inflammable no body questions: But that such in which Acid is the chief Ingredient should burn, looks like a Paradox. To

instance in a few : Acet. Spirit. of Vitriol. Suc. Limon. &c. are so far from promoting Flame, that they immediately quench it : And indeed I know but one Acid in Nature, which is inflammable, and that is Niter. But then this Vital Flame is not of a Nature with Culinary Flames. Answer, Since the Pabulum is the same, methinks the Flame should be so too. Again, tho you speak so much of this Vital Flame, yet you do not (as I remember) much care to fix the Place of its Existence. I suppose it must be in the Blood, if any where. Now 'tis very hard to suppose a Flame in that Body, of which no part is inflammable. If you open a Vein, and the Blood spouts out reeking hot on the Fire, it will immediately quench it. So that methinks, these Notions seem to be a little too finely spun. Acid and Sulphur did support human Life, Men live upon Coals, Brimstone, &c. in which there is store of Acid and Sulphur. That we cannot subsist without Air is evident : For tho there is no

Fire in the Blood, there is Motion undoubtedly. Now the Nitro-aereal Particles give a fresh Fermentation (or Motion) to it, and free it from Coagulation. If you are not satisfied with this, consult the Ingenious Dr. Mayow. But then the Blood has heat and warmth; and these are the Properties of Fire. *Ans.* May they not be excited by its Motion? No (you reply) we are much warmer in Bed, when we use no Exercise, than when we are up and in Motion. *Ans.* The Body indeed is in no motion there; but the Blood is greater than when we are out of our Beds; and 'tis impossible should be otherwise. For do not the Bed-clothes protect us from the Coldness of the ambient Air? And are not a great many of the Volatile Alkalies detained by them, which reflecting upon the Body, warm it, and accelerate the Motion of the Blood? But after all, if we move violently when out of our Beds, we are much warmer than when in them. You are pleas'd to Object, 'tis

'tis impossible meer Motion should cause any Heat in fluid Bodies. How so? Let a Man put Spirit. Corn. Cerv. and Spirit. Vitrioli together, and observe their Effects, they will soon grow warm. 'Tis evident, they do not stand still, but move very briskly before they are warm. And what is the Heat of these Bodies occasioned by, but their Fermentation or intestine Motion? Surely it cannot be by Accension.

Remark. That the Life of Man is a Flame, I think I have sufficiently demonstrated before, and shall here endeavour to make it somewhat more plain. The *Phosphorus* is a thing that is to be obtained from all Animal Substances; and that the *Phosphorus* is a Fire is past dispute, it performing all those things that common Fire will do, viz. enkindle inflammable Bodies, give heat and warmth to those things that are near it, afford Light in the Dark, &c. and yet

yet in very many things doth differ from common Fire. Now if this Fire were not actually existent in Animal Bodies, how is it possible that it should be extracted from them? Common Brimstone, Tallow, Pitch, &c. do abound with Sulphur, and so of consequence are inflammable; yet from none of these, by any Artifice now known, is there the least quantity of *Phosporus*, or any thing like it to be obtained. The *Phosporus* won't burn, without a free access of Air, any more than common Fire: But herein is a very great difference between the *Phosporus* and common Fire. Let any inflammable Body be never so well enkindled, and afterwards the Flame or enkindled part of it immersed in water, and it will instantaneously be extinguished, so as not to be able to recover it self, tho exposed to never so free an Air, without being again ap-

applied to some enkindled Body. Let a piece of *Phosporus*, in a dark night, be placed upon a sheet of Paper, it will immediately, of its own accord, afford a Light, will heat your Fingers, and burn the Paper; this piece of *Phosporus* being put into water, will, in all appearance, be totally extinguished, but tho it has lain in the Water for a whole Year, upon being taken out, will of it self burn, &c. in the same manner it did when put into the Water. Upon stroking of some Cats in the dark, multitudes of small flashes of Fire will follow ones hand, as I have frequently experienced: Now this gentle stroking can never cause so violent a Motion as you make Fire to be, and indeed is, unless it were actually existent in the Animal before. Altho I confess Fire to be a Substance that is constantly in motion, and that this motion is a very brisk one, yet all brisk
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motion is not a Fire, which from the *Cartesian Hypothesis*, seems to be a necessary conclusion : But I can assure you, I know several Fluids, that the more briskly they are moved, the colder they are ; as for instance, a River is always colder in that part where there is a quick Current, than where the Water stands still : The Air is always more or less cold according as the Motion of it is greater or less ; and I can assure you I have been almost starved when forced to travel in high Winds in the *Winter-time*, at which season the Air is most full of *Nitrous Particles*, which you own to be inflammable ; and behold here your *Nitrous Particles* in violent motion, and yet a Man almost starved by them, nay several have actually been so, so that you may see it is not all kinds of violent motion, tho of Particles inclined to take Fire, that will cause a Flame.

So

So that you see I have sufficient reason to maintain my assertion, that meer Motion, tho never so much excited, will not occasion Heat in fluid Bodies, and that there is a difference in some respects between the *Vital Flame* and common *Culinary Fire*, tho in many things they agree. I shall here again enumerate some things wherein *Animal Fire* and *Common Fire* do agree and disagree. *Animal Fire* won't burn without a due access of Air, no more won't *Common Fire*; *Animal Fire* causeth Heat and Warmth, so doth *Common Fire*; *Animal Fire* cannot subsist without a constant supply of sulphurous-Acid Particles, neither can *Common Fire* subsist without a supply of the same Particles, &c. *Animal Fire* (for so I call the *Phosporus*) being immersed in Water, and afterwards taken out again, will regain all its properties of Light, Heat, &c. without being applied to other enkindled

kindled Bodies : This *Common Fire* will not do ; for let it be once extinguished by immersion in Water, or otherwise, and it is never able to recover it self. I do still assert, that those Bodies which are the proper *Pabulum* for Fire, are those which are composed of *Acid* and *Sulphur* ; but those which abound with most *Sulphur*, burn with the greatest violence ; those which abound most with *Acid*, more slowly ; and some *Acid Substances* which have little *Sulphur* in them will scarce burn at all, especially if much diluted with Phlegm, such as *Vinegar*, *Juice of Lemons*, *Spirit of Vitriol*, &c. and therefore when the Heat of the Body is too intense, I give those *Acids* which are least impregnated with *Sulphur*, to abate the violence of the Flame ; when the Heat is too remiss, I then give *sulphurous Acids* to excite the Flame. You say you know but one *Acid*

Acid in Nature which is inflammable, and that is *Niter* : Now I do assure you it is my opinion, nay I am very well able to demonstrate, that most, if not all the pure *Acids* in Nature have their *origins* from the *Niter* of the Air, but pure *Niter* alone will scarce burn at all, unless mixed with some kind of *Sulphur*. As for fixing a particular place for the existence of the Vital Flame, I did not think there was any reason for so doing, but now I tell you, that I suppose it is diffused through all the parts of the Body, and if by accident any part is destitute of it, a mortification ensues. But then again you say it is a hard matter to conceive a Flame in that Body, of which no part is inflammable. Pray what do you think of the Oily Fat Particles contained, not only in the Blood, but all other parts, are not they inflammable. The reason why we are warmer

warmer in Bed, and after violent exercise, is not to be attributed to any unknown Doctrin of Fermentation, but because we have a freer Perspiration at these times, and so of consequence the Flame must burn more freely. The Comparison you make between the Heat of the Blood and that occasioned upon the mixture of the Spirit of *Harts-Horn* and Spirit of *Vitriol* will not hold good; for in the mixing of those two Liquors, or in any kind of Fermentation, there is a very sensible commotion and hurry in all the parts of the said Liquors, whereas in the Blood of well Persons there is no such thing to be discerned. I confess by the impulse of the Heart it is driven progressively from the center to the extremities, to supply the necessities of the Parts; but besides this progressive Motion, I know no other it has, all the Secretions being performed by proper Strainers,

Strainers, not from any Fermentation. Nay it is a very easie thing for a man to perceive that there is no such thing as a Fermentation in the Blood by the following easie Experiment, *viz.* let a few ounces of Blood run out of the Veins or Arteries of a Man, or other Animal, into a very clear Glass Vessel, which vessel you may put into a Sand Furness, wherein the heat may be such as to keep the Blood in the same degree of warmth as it came out of the Vessels; and if there be any commotion to be seen with the best Light and best Eyes, like unto what may be seen in such Liquors which are in a state of Fermentation, upon information I shall gladly own my self mistaken. There is, I confess, a Froth to be seen upon the surface of some Blood after it is let out into the Porringer, which looks like the surface of Liquors which are fermenting.

menting : But this Froth is so far from being the effect of Fermentation, that it proceeds from nothing else but the different stream that the Blood runs in. For in the same Person, let one Parcel run out in a rapid stream, and it will occasion froth or bubbles ; let another Parcel run out gently, and it will produce no such thing. Will not simple Water or any other Liquor do the same ? but Blood being a Liquor of greater consistence, the bubbles when raised will not so soon disappear, as in Water or other Liquors that are more fluid ; from which I hope it is plain, that the constant natural heat of the Blood does not proceed from Fermentation. And if the progressive Motion from the Heart to the Extremities gives it its heat, by the same reason, I think, the Water that runs from our Cocks should be warm also ; whereas I dare be bold
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to say, that instead of gaining any heat by its rapid propulsion through the Pipes, it is much colder than the Water in the River at the place from whence it was received into the Engine. I had like to have forgot to take notice of what you have said concerning the production of *Alkalies*; but it being a very material thing, I shall here expatiate a little upon what I have before said upon that Subject, and shall take care as much as may be to avoid repetitions. I have already own'd that *Alkalies* do actually exist in several Bodies as the principle of their death and destruction, but I never could yet see or hear of any one that has seen any such thing as either a volatile or fixt *Alkalizat Salt*, that was any other ways to be obtained out of Vegetable or Mineral Bodies, than from the Bodies after they had been burnt, viz. out of the Ashes or Soot of

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them;

them, which are their Excrements, or rather the Excrements of Fire; or else after the Body had undergone a Putrefaction, which is analagous to Fire. Now this being so in relation to Vegetables and Minerals, I think it may not be amiss to infer, that the *Alkaly* to be found in Animal Substances is the Excrement of their Fire; and which mightily confirms me in this Notion, all the Excrements of Animals are *Alkalious*, viz. a Matter thrown away either as useless or incommodious; and of consequence all the *Alkaly* to be met with in the Blood or elsewhere, is an Excrement in a way of being carried off. More upon this Head I shall not say at this time, by reason I shall have occasion to enlarge upon this, and upon the Heat of the Blood in my Tract of *Fevers*. But what I have now and before said is, I think, sufficient to satisfy any one
who

who is not a meer *Sceptick*. But for manifest *Acids*, they are to be met with every where almost, both in the Mineral and Vegetable Kingdoms, even in those Bodies that have never undergone a Putrefaction, but are in the greatest state of Perfection; and for *Vinegar* and the like, it is so far from being the effects of Putrefaction, that it is the last degree of Perfection Nature alone is capable of bringing those Liquors to. It is also to be observed, that those Fruits of which Wine is made, were first *Acid*, before they came to a state fit to make Wine of; and that Putrefaction is the Cause of the Acidness of Unripe Fruits, I believe none will assert. This Subject is also too long to treat fully of in this place, and therefore I shall also omit the further prosecution of it for a *Practical Discourse*.

Reply. If Alkalies are the Original of Distempers, whence is it, that in

Dropfies, Catarrhs, some Gouts, and other Diseases, we find the Texture of the Blood so thin? 'Tis observable, that those Particles you term Alkalies, the more the Blood is saturated with them, of the more thick Consistence it is, as we see in Plurifies, Rheumatisms and other Inflammatory Cases (in which Distempers, if in any, the Alkalies abound). Is not then its Tenuity rather to be imputed to Acids? Do not Acids immediately put the Blood in a Fusion, and render it thin? Your Answer to this is, that 'tis not the Thinness of the Blood is the only Cause of these Distempers, but a Destruction of the Tone of the Parts. Here methinks you do not argue so fairly. For you mention little or nothing of the Destruction of the Tone of the Parts in your Etymologies of Distempers till now. And why may not I as well say, in Inflammatory Cases the Blood is not affected with any Alkaline Particles? These Inflammations only arise from a Destruction of the Tone of

of the Parts ; especially, if you consider what you asserted in your Notion of Fevers : For there the Emunctories are very much out of order. But (you object) since Acids will reduce the Blood to its due Consistence, it is not reasonable to suppose they should be the Cause of its Fusion.

Ans^r. Whether Acids will restore the Consistence of the Blood I shall examin by and by : I fear they will not. But this I am certain of, they will put it in a Fusion. 'Tis well known that your celebrated Oyl of Vitriol taken alone, or tho in a Vehicle, if in too great quantity, kills. Now how does it kill ? Does it not by dissolving the Mass of Blood, by separating the Grumous Parts from the Serous, and breaking its Texture after the same Manner as it does that of Milk ? Sure I am, that Blood coagulated by the aforesaid Oyl, does much more resemble Whey and Curds than Jelly of Harts-horn. Now then, what is all this but an Extraordinary Fusion ? And if a large Dose will make such

mad Work, and put the Blood into so great a Fusion; certainly a less Dose must cause somewhat of a Fusion. And 'tis rational to believe that Oyl of Vitriol is proper only in those Distempers, where the Blood is too thick; very pernicious in such as have it too thin. And here I am very glad, that you so opportunely give us your Sentiments of Dropfies. A Dropfie (say you) or the Thinness of Blood in that Disease does not proceed from Acids, but overmuch Drinking. Answ. That large Draughts (there being little Evacuation by Urin) render the Blood more thin is very obvious. But now the Patient had no such desire for Drink, till the Distemper was actually upon him. So that the Question is, what first brought on the Distemper. Was it not a weakness of Blood or want of due Consistence? I do not see how you can well deny it. But then (you reply) let it be so, 'tis impossible Acids should occasion this ill Habit of Blood. For, Hy-
dro-

dropical People are Thirsty, and 'tis ridiculous to imagin that Acids should excite Thirst, when they are the only Things in the World that will quench it. *Ans.* This I confess, at first sight, looks like an invincible Argument: But I must crave leave to weigh it a litle. That Acids drank, or held in the Mouth, usually quench Thirst, is an undeniable Truth: Tho' twill hardly hold good in all Cases. For, let a Man drink Brine, which is very much impregnated with Acids, or eat high-seasoned Meats; I believe tho he were a Stoick he would immediately grow thirsty. But common Salt is not an Acid of a right Nature. Well, admit this. The most famous Acids that I know for suppressing Thirst, are Oyl Vitriol. Spirit. Vitriol, &c. Now I hope to make it appear, that these, or Acids of the same nature, abounding in the Blood, may provoke Thirst. I proved just now, that Oyl of Vitriol had an ugly Faculty of coagulating the Blood, or separating its Serum.

rum. That there is a Separation of the Serum in Dropsies is evident : If any Man should deny it, let him look upon the Abdomen and extream Parts, and his Eyes are enough to convince him. Well then the Serum being thus separated (pray observe) and the Mass of Blood not enough diluted ; the oral Glands must necessarily be defrauded of their due Moisture, and consequently Thirst excited. But still you harp upon the same string : Those Medicines which restore the Consistence of the Blood, cannot well be supposed to impair it. Now Acids restore it ; and Steel in particular. *Ans^w.* That Steel is of excellent Use, and a very great Restorative, is not to be denied. But under favour, tho you discourse very ingeniously of the Nature of Steel : Yet all you have said will not amount to a Proof of its being an Acid. I am still inclined to think it is an Alkaly. For tho it does not discover it self to be such by its Colour, yet it plainly does by its Effects, viz. its Fer-
men-

mentation with Acids. If, notwithstanding this Phenomenon, you will needs have it to be an Acid, why then one Acid will ferment with another; and so one Alkaly with another: wherefore, tho we should subscribe to the Hypothesis, that Alkalies are the Original of all Distempers, yet 'tis hard to exclude the Use of them in general in Distempers. For some Alkalies or other might be found out that should dispute it with these offending Alkalies. You are pleased to quote Beeker for a Confirmation of the Acidity of Steel. The chief Sentence of the Citation seems to be this. Hoc tantum hîc loci allegabo, omne acidum substantiæ martialis esse, in quocunque oleo, pinguedine, fuligine, limo, filice & arenâ, immo etiam ipsâ flammâ reperibile, & ad oculum demonstrari posse; quæcunq; ergo naturæ Acidæ & martialis sunt, illa potestatem habent Alkali tanquam substantiam metallorum mercurialem alterandi & transmu-

mutandi. If I apprehend the Sense of the Author, this does not make so much for you. But suppose it did, Beeker was never reckon'd Infallible. And tho Chalybs were an Acid, it does not follow, because one Acid will renew the State of the Blood, that others will do so too. But since we have so happily fallen on this Subject, viz. the strengthening the Mass of Blood; let us see what other Medicines besides Chalybs are subservient to this End. And here I suppose your bitter Herbs may not be infimi subsellii. 'Tis needless to prove it; for hardly any Physician but what has experienced it. I do not believe you will dare to say, there is any thing of an Acid in these, since you know very well that Alkaly may be extracted from most, if not all of them. So that poor Alkaly is effectual in some Cases you see. But then (you say) Oakbark, Bistort, Tormentile, Comfrey-roots and others of that Tribe will reduce the Blood
to

to Consistence. *Answ.* That they are astringent I grant ; whether they will reduce the Blood, or invigorate its depauperated Principles, I much question. 'Tis very rare to see them prescribed in Dropsies, Cackexies and the like Distempers where the Blood is poor and low. They are proper indeed in Fluxes by virtue of their astringent Faculty ; but then they owe this Astringency to Acids. Whether they do or not it matters not much. But why may not this Quality be derived as well from the Terrestrious as the Salt Particles of these Vegetables : Since Bol. Arm. Terra Lemnia and other plain Earths are very stiptick ? I do not say these Earths are so simple as to have no manner of Salt in them, but surely they have very little Acid.

Remark. I am very glad you own Alkalies to abound in Plurisies and Rheumatisms, and other inflammatory Distempers. Upon my word if this be granted, I have gained a great point ; for to have put the World in-

to a true way of Curing but one single Distemper, is what deserves no small Honour. And for the business of *Dropsies*, I do assure you I have no reason to recede from what I have said upon that Subject; but if you or any one else would favour the World with as certain a Method of curing a *Confirmed Ascites* or *Belly-Dropsie*, as I have done of curing *Rheumatisms*, *Gouts*, &c. I my self would spare no pains to trumpet up that Man's Fame, let him be who he would: But this is a thing I am afraid I shall never live to see effected, because the *Tone* of the *Parts* principally affected, is so destroyed and spoiled, that it would be next door to a *Miracle* to recover them. And although you are pleased to charge me with arguing unfairly, for attributing the Cause of *Dropsies*, in a great measure, to proceed from a destruction of the *Tone* of the *Parts*,
be-

because I had not before in my Etymologies of *Distempers*, taken sufficient notice of that Matter: Well, suppose I had before been deficient in that point, I hope it is no Crime to bring it in late, rather than not at all. But I do assure you, I have frequently taken notice of that Matter, and do lay as great a stress upon it as upon any one thing whatsoever; and I do still insist upon it, that the great Thinness of the Blood in *Dropsies* dos in great measure proceed from the great quantities of Liquids taken into the Body, and the small quantity discharged, by reason the Parts of it have lost their Tone, and therefore the *Secretions* not rightly to be performed; a man that drinks two Quarts in twenty four hours, not being able to piss, perhaps, above four Ounces, *perspiration* also being greatly hindred upon the same account. Now for want of

a due *secretion* by the *excretory Vessels*, the Blood is clogged with too great a quantity of *Serum*; which *Serum* being admitted into the *Lymphatick Vessels*, and being impregnated with *Alkaline Particles*, cannot freely pass along these Vessels by reason of its *Gelatinous* quality, by which means they are distended to a vast Magnitude, and sometimes broke; and from the broken *Lympheducts* it is, that so great a quantity of Liquor is thrown into the Cavity of the *Abdomen*, which distends it to such a bigness. But for all this great quantity that is thrown into the *Abdomen*, the Blood is still loaded with three parts in four more of *Serum* than it ought to be, and therefore the *Oral Glands* cannot want sufficient Moisture. But here lies the thing, the Matter that in a state of health is separated by the *Oral Glands*, is impregnated with a Noble Volatile Acid,
as

as does manifestly appear. But in this Case the said *Acid* is almost, if not totally destroyed, and the said *Lympha* impregnated with *Alkaly*, which is the occasion of the great Thirst that attends *Hydropical* People. But since I have attributed an *Acidity* to the *Lympha* in a state of Health, and yet assert that there is no such thing as a Pure *Acid* to be obtained from the Blood either in a *Morbid* State or in a *State* of *Health*, that being enveloped in the *Oily* Particles, I shall presume, to avoid further Objections, to make a little excursion concerning the general use of the *Glands*.

I shall at present divide the *Glands* into two kinds or sorts, the first of which separate the *Excrementitious* Particles from the *Blood*, and throw them quite off by some proper *E-munctories*, such are the *Excretory* *Glands* of the *Skin*, the *Glandulæ* *Re-*
F
nales,

nales, the *Glands* of the *Liver*, &c. all which do separate an *Alkaly* from the *Blood*, to be thrown off as *Excrement*; and if by any accident these *Glands* are made incapable of performing their office, so that the *Blood* cannot be rid of its *Excrements*, why then a *Distemper* of some kind or other must necessarily follow. The *Second Kind* do receive a *Noble Substance* into them to be again mixed with the *Blood*, or for other *Uses*, of universal *Advantage* to the whole *Body*. The *Glands* of the *Mouth* do separate the thin *Juice* impregnated with a *Volatile Acid*, which *Juice* was never designed by *Nature* to be thrown away, as some *Tobacco-takers* lavishly do, but to impregnate our *Food* as it is chewed in the *Mouth*, and afterwards to dissolve it in the *Stomach*, and turn it into a *Substance* fit for the *Nutrition* of our *Bodies*. The other *Receptory Glands*, for so I presume

sume to call all those which do not separate Excrements from the Blood, do, by the extraordinary providence of Nature, receive into them that fine Substance which is superfluous in the nourishing of the Parts, and by means of the *Lympheducts*, in a gentle and easie course, do convey it to the *Ductus Thorachicus*, where it is mixed with the Chyle, just before it is admitted into the Blood; and that this *Lympha* is a *Mild Acid* has already been owned by many. So that here you see, if there be any *Acid* in the *Body* superfluous, Nature is very provident in the preservation of it, and equally careful in throwing off the superfluous *Alkaly* by a multitude of *Emunctories* or *Excretory Glands*.

From what has been said concerning the Use of the *Glands*, a great many *Phænomena* concerning *Drop-sies*, and other *Distempers*, may

with ease be solved. In *Dropsies*, for instance, as is before observed, the *Excretory Glands* not being able to perform their Office, the *Excrementitious Alkaly*, together with its *Watry Vehicle*, is detained in the Body; by which means, altho the Body may increase in bulk, yet none of the Parts receive their due Nourishment; and the *Tone* of the whole being relaxed and spoiled, the *Receptory Glands* forget their duty also, and instead of receiving into them a pure acidulated *Serum* only, they are forced to let pass some Alkalized *Excrementitious Serum*, which makes the whole of a kind of *Gelatinous Consistence*; which not being able to pass along the *Traacts* of the *Lympheducts*, distends them to that degree that it causeth swellings in the Belly, and *Ædematous Tumors* in the Legs, &c. And *Belly-Dropsies* having for the most part a *Jaundice* as their Forerunner, nay
fre-

frequently goes along with them through the whole course of the Distemper, is no small Argument to prove the Truth of what I have before taken notice of, *viz.* that some of the *Excretory Glands* have been defective in their duty, by which means the whole Body is impregnated with this *Yellow Die*, and the whole *Æconomy* put out of order: And that the Yellowness of the Body does proceed from a redundancy of *Bile*, no body denies; and that *Bile* is an *Alkaly* you don't disown. But now come we to the Curative part of this *Damnable Distemper*; which altho it be rarely to be performed in a *confirmed State*, yet in the beginning, nay after it has made some progress, is frequently to be done, and that as effectually by *Calibiats* and *Bitters* as by any sort of Medicines. But here for want of making Experiments, (by which

means only we are capable of arriving to any sort of Certainty in the knowledg of things) you say that Steel and the bitter Herbs are *Alkalies*, and the reasons you give for it are, because Steel being mixed with *Acids* will cause an *Effervescence*, and the bitter Herbs, after burning, do afford a fixt *Alkaly*. Solid Reasons indeed! For all *Sulphurs* being mixt with *Acids* will cause an *Effervescency*, nay some of them take Fire; and that all *Metals* are full of *Sulphur* is past dispute; and from the Ashes of all Plants, even *Sorrel* it self, may be extracted a fixt *Alkaly*; therefore by this way of arguing, *Sulphur* must be an *Alkaly*, and so must *Sorrel* also. But the manner of the Production of Volatile and Fixt *Alkalies* having been spoken to before, I shall say no more to that Matter. I shall touch a little upon what I take to be the General Principles of mixt Bodies,

dies, not that all these Principles are to be separated from all Bodies, some containing all, some two, three or four of them; and according to the different mixture of them, different Substances are produced. *Acidum* and *Sulphur* I take to be the *Vital Active Principles* in Bodies, *Alkaly* the Principle of Death and Corruption, *Water* and *Earth* the two *Passive Principles*. From these five Principles I think I can more easily account for the *Various Phenomena* in *Natural Bodies*, than from the old Five of *Salt*, *Sulphur* and *Mercury*, *Water* and *Earth*, or from any other Principles that have yet been broacht in the World. I have only mentioned this matter to let you know the Principles I go upon, but shall leave the further prosecution of it to another opportunity. But to return to the business of *Steel* and *Bitters*; as for *Steel*, I have said so much already concerening that in se-

veral places, that I shall not here trouble my self nor you any more about it. But if we can cure Distempers with it, it is no matter tho one takes it for an *Alkaly*, and the other for an *Acid*; nay I can assure you, that if you will but black your Fingers a little with Charcoal, you will find it to be a sulphureous *Acid*. As for *Bitters*, I will be bound to lay a good Wager with you, that if you put a pound of *Centaury* or *Wormwood* dried into a Retort, and distil it with an easie Fire till all be come off that will, and afterwards calcine the *Caput Mortuum*, and extract the fixt *Alkaly* from the Ashes, if you don't find a treble or much greater proportion of *Acid* to that of *Alkaly*, to be produced from these most bitter Plants, I will be a loser; and I assure you I will lay you or any one else a good sum upon this matter. But further, if bitterness did proceed from a predomin-

mi-

minancy of *Alkaly* in any Body, why then a man would suppose the more this Body were impregnated with *Alkaly*, the bitterer it would be: but upon my word I have frequently experienced the contrary. For when I was a Champion for *Alkalious Medicines* (as I am not ashamed to own I once was) I have extracted a Tincture from *Mirr*, *Alloes* and *Saffron*, with well rectified Spirit of *Sal Armoniack*, hoping to do great Feats with it. Now after I had digested them together for ten or twelve days in a gentle Sand-Heat, instead of having the Tincture bitterer than the *Mirr* and *Alloes* themselves were, I have always found it almost, if not altogether, without any bitterness at all in it. Nay after a longer digestion it has been almost perfectly sweet. However I lay not any great stress upon Tasts, the differences in them being one of the spe-

specifick differences the Great Creator hath planted in things, of which we have as yet but very little knowledg. A few degrees of predominancy of any of the Principles, cause very great alterations in Bodies, both as to *Colour*, *Smell* and *Tast*; and for ought I know, a knowledg of these *Minute Circumstances* is what we have no possibility of arriving to in this World. But one word more concerning *Bitters*, because you will account them *Alkalies*, and lay so great a stress upon them. *Vitriol* of *Silver* is the most exalted Bitter I know, and a Celebrated Medicine in the Cure of *Dropsies*, but yet is no *Alkaly*; and after you have considered it, I believe you won't term it so. What you say to *Acids* fusing the Blood, it is directly contrary to what our Predecessors have asserted, who attributed its coagulation to *Acids*, and to what you your self say a little after.

after. But what I attribute to *Acids* in general is this, that they keep the Blood in its due state, *viz.* keep the *Fibrous* and *Globulous Parts* in their due *Texture*, and keep the *Serum fluid*, by which means the whole Mass is capable of performing its proper Offices without being liable to *Stagnations*; and also by confirming and strengthening the *Tone* of the Parts, they greatly contribute to the aforesaid end, *viz.* preventing *Stagnations*, and promoting the *Secretions*. As for what you say concerning the giving of *Oyl* of *Vitriol* alone, I readily assent to it, that it will make mad work. But I hope you cannot charge me with any such *mad Practice*. When People are cold, they naturally run to the Fire for warmth, but none but mad Persons will put their hands into it; and altho Culinary Fire, if People are so imprudent as to throw themselves into it, will consume

sume and destroy them, yet a prudent use of it is a very great comfort to Humane Life; and were it not for Fire the *Russians* and other *Northern People* would have but a very sad time on't during the course of their long *Winters*: so it is in relation to *Oyl of Vitriol*, altho given alone it will cause Death and Destruction, yet being diluted in proper *Vehicles*, and given in very large quantities, will in many cases produce as noble Effects as any one Medicine now known. It is the business of a Physician to consider the Nature and Constitution of his Patient in all respects, and to proportion the Doses of Medicines according to what their Stomachs and Natures will bear. I hope there was never any one so wild, because *Oyl of Vitriol* is recommended in *Fevers*, as to give it alone without a *Vehicle*. But what you charge upon *Oyl of Vitriol* may

may be retorted upon most other Medicines of an active Nature. Because an ounce of *Calamelanos* given at once to a Man will scarce fail of killing him, I suppose that don't deter you from giving a few grains of it to a young Child. An ounce of *Rozin* of *Jallup* will kill a Plow-man, and yet a few grains may with safety be given to a very tender constitution. I could retort a great many things of this kind upon you, were it not altogether needless: for that Physician that gives a Medicine without first considering it in all its circumstances, deserves to be banished from the society of Mankind; and he that knows most, is generally most cautious: and altho I am so clamour'd at by my Brethren, yet I can boldly say, that the greatest slips that ever I have made, have been from my over-cautiousness; and I will rather choose to commit three faults from

from that, than occasion the loss of one Man's Life from rashness and inconsiderateness. What you have objected against Oyl of Vitriol taken alone, has long since been objected by other People, and the Objections fairly answered. I shall presume to transcribe what I have met with in an *Apologetick Dialogue* between *Philerastus* and *Chemista*, upon the same Subject, *Theatrum Chymicum*, pag. 86, 87. Vol. I.

Ph. *Absit tamen Vitriolum, Chalcithin, atque alia idgenus leprosa, impura, atque corrodentia mineralia in humanum Corpus ingeri, & ad perpetuam tui Nominis ipsiusque artis infamiam usurpari.*

Ch. *Quid ita, Hospes mi?*

Ph. *Nam cum Oleum Vitrioli etiam à Gesnero toties laudatum, Scutellam Stanneam exedit: quis simile periculum in Stomacho nostro membraneo non meritò verebitur?*

Ch.

Ch. *Aspera tu quidem tela elidis, sed quæ facile retundi queant à Philosopho excitato. Nam si Oleum Vitrioli propter Stannum ex eo exesum humano corpore exulabit: quid Vino sublimato, Aceti Mellisque Spiritu, quid tale, & Limonum Citrorumque succo fiet? Nam eorum unumquodque Stannum absumere, vel semestris Medicus agnoscit.*

Ph. *At non tam parvo temporis Curriculo, atque Spiritus ille Vitriolatus.*

Ch. *Imo sanè minori, si cum nostro illius exhibendi modo conferatur ratio; nollem enim te aliquem Chemicum tam stupido ingenio præditum existimare, ut Oleum Vitrioli nullis aliis mixtum Liquoribus propinare ausus sit: sed potius ad aquæ Rosacæ vel alterius Liquoris libram Olei Vitriolati guttas totidem adjicere, quod ad aciditatem comparandam satis esse queant, cui Liquori Oleo Vitreoli accrescenti, si tantum Stanni immerseris, quantum Aceto: nullum non invoco supplicium, nisi Stannum multo magis corrosum reperiat.*

tur. Verum si hoc Oleum Vitrioli vel etiam Sulphuris in usu esse non mereatur propter erosionem, quo se conferent cantharides, à Galeno inter ea Medicamenta relatæ, quæ ne gustare quidem audeas propter summam putrefactionem atque erosionem? tamen veterum ferè omnium atque multorum Neotericorum praxes eas ad Urinam provocandam, penisque $\alpha\tau\omicron\nu\iota\alpha\upsilon$ & suscitandam Venerem usurpant atque commendant.

Ph. Nequeo diffiteri, sed tamen parva quantitate eas prescribunt, & non nisi aliis convenientibus rebus admixtas; quo quidem modo exhibitæ non solum innoxie perhibentur, sed etiam persalutares.

Ch. Vera prædicas, atque ego itidem respondeo; Olea prædicta debita quantitate, mixtura, præparatione exhibita, tantum non corrodere corpus humanum: sed ejus spiritus reficere, Febres extinguere, obstructions aperire, putredinem arcere, venena exigere, sitim sedare, Ulcera percurare, omnesque illas vires cum laude sua plurima

plurima exercere, quas illi Gesnerius Epistola ad Cosmam Medicum, aut Paracelsus in Libro de Vitriolo ascripserunt.

I could produce a great deal more of this kind from many of the antient Chymists, who were honest men, and who to the best of their knowledg did endeavour to reform *Physick*, and to put Practitioners upon a right bottom : But they were defective in so many things, that their undertakings wanted success, tho from some of their Writings honest and inquisitive men may receive great advantage. Altho I shall not trouble you with any thing more from the Antient Chymists, yet I shall make bold to transcribe a Letter I lately received out of *Yorkshire*, there being something in it that relates to the point in hand.

Tertio Non. Martii.

Vir Dignissime,

TRactatus tuos summis cum deliciis
 & voluptate perlegi, & tuum
 in promovendo illo Nobilissimo Medicinæ
 studio institutum maxime demiror in hu-
 mani generis bonum universale: Maacte
 Bone Vir Melioribus Avibus, & Momas
 aspernare: Te certum faciam me acidis
 uti 10. annis elapsis summo cum successu,
 & Alkalia tantum ut absorbentia Acidi
 æstimo: assiduâ experienciâ videatur quan-
 tum valet appetitus & digestio, & quid
 dubius est hoc in casu quam Alkalia & quid
 melius Acidis: & Acidum est tantum so-
 lum fermentum Ventriculi, quid Coward
 audet dicere nemo advertet. Omnibus in
 seculis præteritis quot Morbos edomuit
 Acidum non necessarium est enumerare.
 Virum quendam habui putridâ Febre la-
 borantem, quem tantum Sp. Vitrioli in aquâ
 frigidâ (Deo favente) restitui: in Hæ-
 moptoe,

moptoe, Hydrope, fluxu Muliebri, & fere
 omnibus in Ventriculi Morbis, Scorbuto
 infinitos fere curavi Acidis commixtis, &
 in vehiculis appropriatis exhibitis. Equi-
 tem Vicinum meum calculo cum Paralysi
 & Hemorrhodali fluxu decumbentem quo-
 dam Acido ad priorem valetudinem re-
 duxi, & ab Orco detraxi: immo quamvis
 in Hypochondriaca affectione Acidum cul-
 pamus, tamen quid emolumenti in isto Pro-
 teo accidit à quodam Acido non est nunc e-
 narrandi locus, hic Acidus meus liquor om-
 nes obstructions reserat & flatum, Gas
 illud Sylvestre compescit, & omnes istos
 motus irregulares componit (instar fulmi-
 nis) si quicquid in Praxi vel Lectione
 meâ occurrit summâ cum sedulitate ad te
 (mi bone Vir) mittetur.

Nam tui favoris sum studiosissimus

Jo. Watson.

Postscript.

Be pleased to direct a Letter to me, to be left with Mr. *Uster*, Apothecary in *Burnsly* in *Yorkshire*, by *Doncaster Bag*. I beg a Literal Correspondence, and shall communicate to you some *Acid Arcana*, for that name they deserve.

I hope what I have said is sufficient to remove that Mighty Objection about the hazard of giving Oyl of *Vitriol* alone: But I might have spared my self this trouble, for I am almost positive, that there is not any *Physician* in *Christendom* of any business, tho never so great an assertor of the usefulness of *Alkalies*, who has not some time or other made use of even Oyl of *Vitriol*, that dangerous *Acid*: but how they can answer for it I cannot tell: for if *Acids* are the cause
of

of Diseases, how they dare with a good Conscience give even the most temperate *Acids* to their Patients, I cannot understand; and I am sure they themselves can give no reason for it. But I believe it is from a conviction of Conscience that nothing is to be done without them. Again, if *Acids* were so pernicious to Mankind, as some People would make us believe, I wonder that the College of Physicians don't unanimously petition the Parliament to prohibit the Importation of *Oranges* in such vast quantities as we now have 'em. You greatly harp upon that string, that *Acids* held in the Mouth won't quench the violent Thirst of Hydropical People; to which I answer, that it is impossible when the whole Mass of Blood and *Lympha* are contaminated with *Alkalious Particles*, that the washing the Mouth only with *Acids* should take away

the Thirst, when the parts are continually washed with the contaminated Juices, and so, of consequence, the particles of the *Acid* must be soon obtunded. But however nothing is more grateful or delightful to an *Hydropical Person*, than a slice of *Lemon* or any such thing. Common Salt I allow will excite Thirst, but not *quatenus Acid*, for Spirit of Salt will take it off as soon as any thing. But, Sir, I do assure you I have stumbled more at this one thing, *viz. Common Salt's exciting Thirst*, than at any thing else besides, and therefore have spared no cost in making *Experiments* to find out the reason of it; at last, after much labour and sweat, I found there was no Salt but what had more or less of a damn'd thing call'd *Bittern* mixt with it, of which you may be perfectly inform'd at any Salt Works; now this *Bittern* is the most corroding

roding fixt *Alkaly* in Nature ; and altho it be inconsiderable in quantity in respect of the *Acid* the Salt contains, yet it will fix it self upon the parts after the *Acid* of the Salt is all dissolved, and so excite Thirst. Of this *Bittern* you may expect more in another place ; for had I not had a design to please and satisfy you, I would not at all have taken notice of it here ; because the allaying of violent Thirsts I only attribute to manifest *Acids*, and common Salt not being one of that sort, it matters not whether it will allay Thirst or not. I love not repetitions, but however for once I shall be guilty of it. You may remember that in another place I tell you, that those things which by Distillation afford a greater quantity of *Acid* substances, than of *Alkalious* ones, are to be reputed *Acids*, & *vice versa* ; now common Salt affords nineteen parts in

twenty more of *Acid* than of *Alkaly*, therefore is an *Acid*: but before Distillation the *Acid* is so *inveloped*, altho it contains so much of it, that it is not at all discernable to the Taste. I believe no one that has blackt his Fingers will deny *Guaiacum* to be an *Acid*, but at the same time I believe it was never prescribed to allay Thirst. Things, tho of the same Tribe, are differently to be administered, according as they are differently speciflicated by Nature. It is not a certainty of the knowledg whether *Acids* or *Alkalies* are the Causes of Diseases, will presently make a man a Physician, tho it will go a great way towards it, but a thorow knowledg of the different specifications of Nature must also concur.

You charge me with contradicting my self, and after that you should have been sure to have avoided any
such

such thing your self; but however in one place you say, that Oyl of *Vitriol* dissolves the Blood, and in another that it coagulates it; but I shall take no advantage of this slip, but shall conclude my Remarks upon this Paragraph, I having already spun them out to too great a length.

The next Paragraph is too long to transcribe, and there being little material in it, I shall only make some general Remarks upon what I find worthy taking notice of.

You first of all charge me with saying, that neither too much nor too little *Acid* must be given, which is the sum of a Page or two, viz. 19, and 20. In answer to which, I do assure you, that no *Virtuoso* need be ashamed to employ his time in considering the due proportions of things requisite to accomplish the thing he undertakes. Now in Physick

sick he that doth not understand the true Rules of Proportion, deserves not the Name of a Physician. He that will prescribe an Ounce of *Jallap* instead of a Dram deserves to be hang'd ; and who but a mad man will give a Pound of Oyl of *Vitriol*, when forty Drops in a Pint of Water is all that is desired ? But, Sir, prudent Physicians have a wonderful Director in relation to Manifest *Acids*, and indeed to every thing else, that is the Stomach, which is a nice judger of things ; that which is agreeable to her, she receiving and retaining with pleasure, that which is disagreeable she rejecting and abhorring. But however she must not be overloaded with those things in which she taketh the greatest delight. Now Manifest *Acids* are things she as much or more covets and delights in than in any thing besides ; but when she hath enough to supply her wants she

she gives sufficient item of it; and
 if the Stomach be rightly consulted,
 it is impossible the Blood should be
 overcharged with them; but if at
 any time People are not sufficiently
 cautious of that matter, but load the
 Stomach with more manifest *Acids*
 than the Body hath occasion for,
 she won't fail of rejecting them
 by Vomit: this Matter may at any
 time be safely experimented by an
 over-large draught of *Vinegar*, in
 any Case where the Body hath no
 need of it, or at least in so great a
 quantity at a time; for which rea-
 son I tell you that the Blood can-
 not superabound with *Acids*, as it's
 plain in fact it doth not, neither in a
Morbid nor *Healthy State*, because the
 Stomach will not receive or retain
 more than it hath occasion for; but
 altho it cannot overdo, yet it is
 very frequently defective in convey-
 ing a sufficient quantity into it, ei-
 ther

ther through its own fault, or the fault of the Physician who forbids the use of them, and so the whole Body suffers damage. How greedily will the poor Stomach embrace the Juice of an *Orange*, or the like, in a *Fever*? and how scornfully will she reject and abhor any thing of a contrary nature? nay the usefulness of *Acids* is so evident and extensive, that it is almost a shame they should now want a Champion, after there has, for so many years together, been so great a noise made about *Experimental Philosophy*, and even publick Societies, in many Nations, erected on purpose to cultivate it. But to return from whence we left off; I am apt to believe that if you take the following advice, you will scarce be guilty of an Error in the giving of manifest *Acids*, viz. always give them in such quantities as the Stomach will

re-

receive them with pleasure and delight, and never refuse them when the Stomach earnestly craves them; this is the method I observe at present, and believe I shall never have occasion to recede from. I confess it may be lawful sometimes in very extraordinary cases to strain a point beyond what Nature craves, but herein if the thing should chance to be overdone, all the damage that can ensue is occasioning a puke or two; this you may take from my constant experience, and believe me I would not willingly impose upon you and the World: But in general, it is always necessary for us Physicians, who are, or at least should be, only Natures Servants, strictly to observe her Necessities, and not to outrun her Dictates.

Without making the least Experiment to convince me of being in an error, you go on to range *Sassafras*

safras amongst the number of *Alkalies* ; but when, from Experience, I do assure you that *Sassafra* is an *inveloped Acid*, I think you ought not to trouble me and the World with conjectures ; and were it not that I value and respect you, I would not so much as take the least notice of your Conjectures. As for the remaining part of this Paragraph, I think I have no occasion to take notice of it, I having sufficiently answered every thing that looks like an Objection in it in my former Remarks ; and therefore shall, in your own words, conclude, that if I have any where expressed my self indecently, I hope you won't attribute it to rudeness or disrespect : for I do assure you, I think you a Blessing to the Country wherein you live, and don't doubt but that I shall see you an Honour to our Profession.

I should have concluded, but that you also begin again; and that I may not be unmannerly, I shall for once keep you company to the end of your Journey; but do not design any more to trouble the World with Disputes, but if any thing more of that Nature offers it self, worth my taking notice of, it shall be included in some Practical Discourse. And so pass we on to your Reflections upon the First Part of my *Essay of Alkaly and Acid*. And first,

O F

OF THE
Small Pox.

WHAT I think worthy of taking notice of at present in your Reflections upon this Matter is this, That you honestly and fairly allow the giving of *Acids* in a *Flux Pox*, the only dangerous one, and from which our Patients are in most danger: but in *Benign Poxes* you commend me for doing nothing, and indeed I shall always continue so to do where my Patients have no occasion for Medicines. I am a Friend to *Rad. Serpentariæ Virg.* as well as you, in all those Cases where there is an occasion for *Cardiacks*; that and *Saffron* being as Noble Cordials, as perhaps, are at all known,

known; yet they must never be given but with due caution and circumspection. But I am a professed and declared Enemy to *Pul. e Chelis*, and all things of that kind. And once again I do assure you, that *Rad. Serpentar.* upon distillation will appear to be a *sulphureous Acid*; and in Cases where the Pox doth not come out kindly, and the Pulse is low, an infusion of that Root in *Vinegar*, or some such thing, will do very good feats. I confess the *Tefaceous Pouders* in *Benign Poxes*, are frequently given without any evil consequence; but the reason is, that the Patients are generally in so good a condition, and have so much strength of Nature to support them, that it is almost impossible to kill them; but what fatal work they make in *Flux Poxes*, or any other of a malignant kind, is but too frequently seen. Here observe the difference

H ference

ference between your Method and mine, even by your own confession. Mine is principally serviceable in dangerous Cases, Yours in those wherein there is no danger. Granting this, you may still keep your own Method to your self, and I will stick to that which will stand me in stead in hazardous Cases, and even only stand by and look on in those where my Patient has no occasion for my help. You at last blame me for giving *Syrupus e Meconio* in the beginning of the *Small Pox*; but surely you are overhasty in blaming me upon that score, for of all men in the World I deserve least to be blamed for tampering too much with *Opiats*. If you remember, the occasion of my prescribing *Diacodium* in the beginning of the *Small Pox*, was this, *viz.* If the Patients Stomach be overcharged or clogged with viscous Matter, I then

pre-

prescribe an easie Vomit; and after the operation of the Vomit is over, to allay the hurry and disorder occasioned by it, I prescribe a little *Diacodium*, but never prosecute it afterwards, as some people fatally do. I have not time, else I would remark upon you Line by Line; but having taken notice of what is material, I shall let fall the rest, and leave you and your Friends to make the best of it. But cannot forbear to assure you, that two or three of my greatest Enemies in this Town, have of late prescribed *Acids* plentifully to their Patients in the *Small Pox*, and yet at the same time have railed at me for so doing: whether this be like Gentlemen, I leave the World to judg.

OF THE
Scurvy.

IN this Matter you perfectly agree with me in my Practice, only you would bring in the *Bitter Herbs* as great assistants in the cure of this Distemper, and these Herbs you will have to be *Alkalies*. As for *Bitters* I greatly approve of them in their proper places. But having before put you in a way to be satisfied that they are not *Alkalies* but *Acids*, I shall not here trouble my self nor you any more upon that Matter: Nay if we can but once agree in the main Point of curing Diseases by any particular sort of Medicine or Medicines, tho you account it an *Alkaly* and I an *Acid*, we ought not
to

to fall out about that matter, but give God thanks that we are able to perform the Work we pretend to. Yet at the same time I think a Physician ought as much as he is able, to know the true reason why a Medicine performs such and such Operations. And I must confess I shall be very unwilling, upon any occasion, to prescribe a Medicine, the manner of whose operation I am not able to account for. As for what you say concerning the *Scurvy* that attends the People in the North Part of *Devonshire*, I think I have sufficiently accounted for that matter already; and I doubt not but impartial Readers, who will give themselves the trouble of perusing my several Tracts, will acknowledg it.

O F

Rheumatisms,

WELL met my good Friend!
I must confess you have almost come to an agreement with me in several things before, yet here you say your Practice and mine are the same, but don't mention how long you have used this Method in the cure of this Distemper. However I can't presume you had it from me, but that it was your own Judgment that led you to it. I hope, for the good of the Country where you live, that in a little time we shall agree in more things than the cure of *Rheumatisms* only. However I would have you remember, that in another place you blame

Acids

Acids as the cause of Pain, and yet here you professedly use them in the cure of a Distemper, the principal Symptom that attends which, is exquisite Pain.

O F

Consumptions.

A *Consumption* is a Distemper, the progress of which in this our Island, I have oftentimes heartily bewailed. It is likewise a Distemper that most of my Predecessors (as I have before observed) have died of, even in the Prime of their Ages; and is also what I have more cause to be afraid of than any thing else besides; upon which score I have spent a great many days and nights in the consideration of the Nature and Cause of

this *Fatal Distemper*, which deprived me of the best of Fathers, whilst I was but a Child, and has also robbed me of some other of my best Friends. Now the reason why I have not hitherto spoken so much about it, as of other Distempers, is, because I have been some years in collecting Observations in order to the writing a particular Tract of *Consumptions*, and was unwilling to anticipate what I had to say upon so weighty a Subject, tho I was able to say as much concerning that Matter, as of any Disease about which I have treated. Nay, I am apt to believe, that I may without Vanity say, that I have cured more true *Consumptions* in the space of one Year last past, than any one Physician in *England* has done, and that by the means of *Acids* of one sort or other, viz. either Manifest or Inveloped ones; an ample account of which,

as

as soon as my business will permit, I design to make publick. But however I shall spend a little time in remarking upon what you have said. You allow *Acids* to be proper and beneficial in those *Consumptions* not attended with a *Catarrh*, which is a concession which very few Physicians besides will give their assent to; or at least if they will, they are but very lately come over. But considering that the main thing you harp upon, is, that manifest *Acids* are not proper to be used in *Catarrhs*; I shall a little take that thing into my consideration. Now although a *Catarrh* will cause a *Consumption*, or wasting of the Parts of the Body, yet a *Catarrh* is not what we in *England* commonly call a *Consumption*; the Distemper called *Tabes Anglicana*, or the *English Consumption*, proceeding from an ulceration of the *Lungs*: and in these cases for the most part we have

have no *Catarrh*, though sometimes it doth attend them; but one of the principal Symptoms of this Disorder is the discharge of a great quantity of tough, yellow and greenish *Pus*, in which cases you allow *Acids* to be proper: nay although there be a *Catarrh* attending them, yet it is not from that that we make our fatal Prognosticks, but from the good or evil nature and quantities of the aforesaid *Pus*, with some other Symptoms not necessary here to enumerate. Nay it is not uncommon for our Consumptive People to bring up from their Lungs by Coughing, as perfect *Chalk Stones* as ever were found in the joints of Persons severely handled with the *Gout*; which Chalk I am sure was never the Daughter of an *Acid*. But however not to insist any longer upon this matter at this time, it not being the proper

per place for it, I shall return to the business of *Catarrhs*. I have before taken notice, and as you your self here own, that the *Saliva* is a noble *Acid*, and conveyed to the Mouth for a most noble purpose, *viz.* to be mixed with the Food in chewing, and afterwards in the Stomach, to turn it into a substance fit for the nutrition of our Bodies. Now if on any occasion the *Glands* of the *Pharynx*, and other *Glands* about the Mouth are over-relaxed, that they cannot retain the *Lympha* in their proper receptacles, but let it fall continually from them, being what we call a *Catarrh*, or defluxion, this must inevitably cause a tickling Cough, not because it is an *Acid*, for even a defluxion of the most simple Water would produce the same effect; but the Body being continually robbed of this most noble Juice, cannot fail of being wasted and decayed by it.

And

And that the cause of a simple *Catarrh* doth proceed from a relaxation of the texture of the *Glands* only, and not from the *Lympha* contained in, and continually brought to them being over-acid, the following easy Cure is sufficient to demonstrate, *viz.* Let some *Mastick* and *Olybanum* be made into *impalpable powder*, and with a long Quill or a hollow Instrument made on purpose, let it be blown upon the *Larinx* at night going to Bed; the continuance of which for some Nights together will frequently do wonders in the cure of *Catarrhs*. I confess this was none of my own contrivance, but was communicated to me by my worthy Friend *Dr. Jones*, who is a man of the most happy invention that ever I met with. Now the only design in the using of this Powder is, that being immediately conveyed to the Parts affected, it should

should cause them to contract them-
 selves, or regain their *Tone*, and of
 consequence the *Catarrh* will cease.
 This is not all that I have to say
 concerning *Catarrhs*, but I think is as
 much as is necessary at this time.
 You tell a famous Story of a Person
 that had a *Catarrh* brought upon him
 by the over-plentiful use of *Sevil*
Oranges; but are so deficient in re-
 lating several circumstances that are
 necessary to be known upon such an
 occasion, that if I have not already
 said enough to solve this difficulty,
 I shall leave you to make your best
 advantage of it; for I am so tired
 that I can go no further. And I do
 assure you it shall be the last Con-
 troversial Discourse that ever I will
 write; for if ever I meet with any
 Objections against my *Hypothesis*
 worth taking notice of, I shall make
 it my business to clear my self from
 them as well as I can, in those Practi-
 cal

cal Discourses that I design (God willing) hereafter to publish. I confess I am over head and ears in debt to the Publick, having promised several things which many have expected should have come abroad long before this time, and indeed I designed they should; but several unexpected Accidents have intervened, which have put me by, and hindred me in my undertakings, yet in due time I will endeavour to fulfil what I have promised. I shall conclude with assuring you, that I am now so absolutely confirmed in the truth of my *Hypothesis*, that I am sure it is not in the power of any one to overthrow it; tho at the same time I must own that I may have been deficient in some circumstances relating to the explication of it; but time and further observation, I hope, will clear all those things. Thus wishing you to weigh

(III)

weigh all things in the Balance
of Reason and Experience, before
you pass a Censure, is all at present
from

Your real Well-wisher,

Villars-street York-
Buildings, May 12.

1 6 9 8.

Jo. Colbatch.

POST

POSTSCRIPT.

DR. *Coward* took an occasion to make some wonderful Reflections upon me and my *Hypothesis*, in order to recommend a Medicine of his own invention to the World. This Medicine, which he calls *Tinctura Sanitatis*, is as Noble in its Nature, as the Author is Generous and Great in his Temper. I can assure the World it is nothing else but the most ridiculous kind of *Sal Volatile Oleosum* that ever I saw; and were it not that I am unwilling to expose a Member of the *College*, I would print the Receipt, which was communicated to me by one that has been employed by him to prepare it. The Doctor cannot but own that I am more generous to him than he has been to me,

me, in that I have not published the Story relating to Mr. *Bat* and Mr. *Lord* also. But such poor Enemies as him and *Lee*, are rather to be pitied than any thing else. However, *Sal volatile Oleosum*, being a Medicine in great vogue with almost all other Physicians, I shall presume to make some few reflections upon the main ingredient in it, which is the *Volatile Spirit*, or *Salt of Sal Armoniack*. Now every body knows that the *Volatile Spirit*, or salt of *Sal Armoniack*, are little else but the *Volatile Spirit* or *Salt of Urin*, which at best is no more than an Excrement of our Bodies. But however, there is something more that deserves our taking notice of, in order to deter us from the use of this Medicine, which is now so much in fashion, to the no small detriment of many. The *Salt Armoniack*, from which the *Volatile Spirit* or *Salt* is extracted, is a Composition of *Urine*,

Soot and Sea-Salt; and by the addition of a fixt *Alkalizate Salt* or *Quicklime* (which is the usual method in making *Spirit* and *Salt* of *Sal Armoniack*) the *Acid* of the *Sea-Salt* is so intangled, that it readily lets go from it the *Volatile Spirit* or *Salt* of the *Urine* and *Soot*; but that of the *Soot* is very inconsiderable in quantity to that of the *Urine*. Now the *Urine* made use of for the aforesaid purpose, is generally procured from publick Houses, which is a jumble of all together, viz. of People labouring under all kinds of *Habitual Diseases*, as *Pox*, *Gout*, *Scurvy*, *Scrubbado*, &c.. Now there is scarce a *Disease* attending Man's Body, but some of the *Morbifick Particles* are imparted to the *Urine*; and if the *Urine* in general partake of them, the *Spirit* and *Salt* must do so in a more eminent degree; so that, I think, a necessary consequence of giving such a Medicine

cine must be the sowing the Seeds of Diseases in Mens Bodies. And I believe in my Conscience that one great reason of the late frequency of some Tyrannical Diseases, more than heretofore was wont to be, has proceeded from the exorbitant use of Spirit and Salt of *Sal Armoniack*, and those other things of which they are prime ingredients. Now I desire that our Ladies, who are subject to **Histerical** Distempers, would well consider this matter, because they are generally armed with it, to fright away that Distemper, of which I am afraid it is in great measure, if not altogether the cause, or at least of the saline Particles of the same kind with which their Blood abounds. I shall say no more at this time, but hope this further Hint, to deter people from the use of *Volatile Alkalious Spirits* and *Salts*, of which the Spirit and Salt of *Sal Armoniack* are most com-

common, may not be unserviceable.

I have made use of the words Spirit and Salt of *Sal Armoniack*, as of things somewhat different, tho indeed there is no real difference between them; that which is called Spirit, being only a proportion of the Salt diluted in a proper quantity of Phlegm: this is well known to Physicians, but it is very probable that other Persons into whose hands these Papers may chance to fall, might have laboured under some difficulty about it, without this Intimation.

F I N I S.

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